**NOTE: DRAFT – Internal, Predecisional, Deliberative**

**EPA Review of Draft *Radiological Data Evaluation Findings Report for Parcels B and G Soil, Former Hunters Point Naval Shipyard, San Francisco, California, September 2017.***

**EPA Comments on Parcel G portions, October, 2017**

Introduction:

To be able to sign a Finding of Suitability for Transfer (FOST), EPA needs to evaluate the record to determine if it supports a conclusion that the ROD conditions have been met. The Parcel G Record of Decision (ROD)[1] states "Buildings, former building sites, and excavated areas will be surveyed after cleanup is completed to ensure that no residual radioactivity is present at levels above the remediation goals. Excavated soil, building materials, and drain material from radiologically impacted sites will be screened and radioactive sources and contaminated soil will be removed and disposed of at an off-site low-level radioactive waste facility." (Parcel G ROD, Section 2.9.2, p. 44)

Though EPA has previously approved the Radiological *Final Removal Action Completion Report, Parcel G,*[2] in the spirit of the CERCLA §121(c) Five Year Review process, the Navy and regulatory agencies must review new information since then "to assure that human health and the environment are being protected" and if further "action is appropriate" for that purpose.

The Navy's internal quality control review discovered discrepancies in the soil samples in 2012 and required an investigation, resampling, and new excavations at that time. In February, 2016, the Nuclear Regulatory Commission (NRC) documented "failure by Tetra Tech to make or cause to be made, surveys that were reasonable to evaluate concentrations and potential radiological hazards of residual radioactivity in the soil at HPNS."[3] Section 2.5 of the draft report under review lists examples of allegations by former workers of "soil data manipulation and falsification."

The individual forms in Appendix C of this report give more specific documentation of signs of such "soil data manipulation and falsification" and gives locations where the Navy recommends further action to address these problems. EPA has identified more locations with signs of falsification.

The forms and data also document signs of failure to follow the workplan in multiple locations. In some locations, even when signs of falsification are not found, if the record may not be complete enough to allow a determination that ROD conditions have been met. For example, the workplan requires that in addition to systematic soil samples using a grid, 100% scans are also necessary to identify potential hot spots missed between systematic samples. If scan results are missing or if they do not appear to represent a wide enough range of readings that would be typical, then a determination cannot be made about whether or not potential hotspots were

[1] *Final Record of Decision for Parcel G, Hunters Point Shipyard, San Francisco, California*, February 18, 2009
[2] Radiological *Final Removal Action Completion Report, Parcel G, Hunters Point Naval Shipyard, San Francisco, California* (December 2, 2011, DCN: ECSD-3211-0018-0179)
[3] NRC Office of Investigations Report No. 1-2014-018 (https://www.nrc.gov/docs/ML1604/ML16042A074.pdf)

identified and remediated. In these situations and others, further action is necessary before the EPA can sign a FOST.

**Executive Summary**

Parcel B – EPA will review Parcel B portions of this draft at a later date.
Parcel G
Assumptions and Uncertainties

**1 Introduction**
1.1 Objective
1.2 Scope of Data Evaluation
1.3 Assumptions and Uncertainties
**2 Radiological History**
2.1 Storm Drain and Sanitary Sewer Line Investigation
2.2 Current and Former Building Soil Investigation
2.3 Release Criteria
2.4 Anomalous Soil Samples Report
2.5 Former Worker Allegations
**3 Data Evaluation Activities**
**4 Findings and Recommendations**

Section 4.0, p. 4-1: In some locations, the Navy recommends reanalyzing archived samples. Results may not be meaningful due to several concerns:

- Former workers have alleged that in a building where samples were stored, samples were spilled on the floor, workers engaged in sloppy practices of securing radiological controlled areas. Therefore cross-contamination or sample tampering could have occurred.
- Locations of original samples are uncertain. GPS coordinates were not collected during the majority of sample collection events. The NRC concluded enforcement action confirmed that samples were sometimes collected away from the proper locations. It also confirmed that chain of custody forms were sometimes fraudulent.

[From Lily - I don't understand these notes:

- Some areas knew was real contamination.
- Due to historic separation of storm drains and sewer lines, Separation between storm drain & sewer lines could have meant that the locations of contamination. E.g. manholes Cochrane st did have elevated Cs-137]

[Note: Attorney recommends against engaging with the Navy using the argument that if the first round of sampling shows with offsite lab analysis that RG's were not actually exceeded, then they would not have had to do more sampling round. Stick with arguments challenging the reliability of the first round samples.]

Section 4.0, p. 4-2: The draft states, "After carefully examining the analytical data and the conceptual model for soil contamination, it is concluded that the upper range of naturally occurring Ra-226 exceeds the release criteria. Therefore, cleanup will be hampered without an understanding that naturally occurring Ra-226 may exceed the release criterion without being indicative of contamination." When Navy did three rounds of attempts to separate storm drain and sewer lines, the fill consisted of many types of piping that were not original. Contamination could have spilled. All soil would have gotten mixed up. Th Navy would need to perform alpha spectroscopy to show that Th-230 was in equilibrium with Ra-226 to conclude that Ra-226 is naturally occurring. Either delete this statment or give evidence in the form of laboratory results that Ra-226 present is naturally occurring. If the Navy wishes to establish new reference background levels, new sample collection would need to be located in areas that are established as unimpacted.

4.1 Parcel B – EPA will review the Parcel B sections of this report at a later date.
4.1.1 Trench Units
4.1.2 Fill Units

4.1.3 Current and Former Building Sites

4.2 Parcel G
4.2.1 Trench Units

EPA reviewed the forms in Appendix C. Some of the guiding principles of the review included the following:

- The Workplan[4] is a Federal Facility Agreement (FFA) primary document, so the Navy and its contractors must follow it just as any other FFA primary document. Further action recommended action should be based on a technical decision, using best professional judgement, as to whether the record is sufficient to support a conclusion that the ROD requirements have been met to "ensure that no residual radioactivity is present at levels above the remedial goals." Otherwise EPA cannot sign a FOST.
- If multiple explanations are possible for an observation in the record, then for purposes of recommendations for further action, reviewers should assume the worst case reasonable explanation.
- Any falsification anywhere in the process in a given survey unit calls into question any findings within that survey unit, and resampling is recommended. If the same team has done the work within a given survey unit, then they could have engaged in falsification during multiple aspects of work in that survey unit.

Results of EPA's review appear in the attached spreadsheet. The second column with an "overall score" indicates the following determinations:

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[4] Base-wide Storm Drain and Sanitary Sewer Removal Revision Number: 4, Hunters Point Shipyard, San Francisco, California Revision Date: July 2010, DCN: FWSD-RAC-06-0675.R4 CTO No. 0018

- 2 = Sufficient evidence has already been found in the form, the FRED database, and/or other sources to conclude the resampling is necessary in this trench unit before EPA can conclude that the record supports that the ROD requirements have been met.

- 1 = More review is needed before EPA can conclude whether more resampling is necessary. More review may include, for example, further statistical tests to be run and completed soon.

- 0 = No indications have been found thus far for particular concerns in this trench unit. However, as the Navy wrote in Section 1.3 of this draft report, "Because it is impossible to determine whether every instance of potential data manipulation or falsification has been identified, the Navy recommends additional surveys and sampling beyond the areas with evidence of data manipulation. Additional soil sampling locations will be selected in coordination with the regulatory agencies." (Section 1.3, p. 1-2)

4.2.2 Fill Units

For now, EPA plans to prioritize fill units for resampling in correspondence with the priority of the source trench units for resampling. However, additional fill units may require resampling if they show additional signs of falsification related to Radiation Screening Yard evaluation or other signs that the data do not provide a sufficient record to confirm ROD conditions are met.

4.2.3 Current and Former Building Sites

4.3 Conclusions and Recommendations

Together, the EPA and the Navy found enough concerns to recommend resampling in 83% [Need to update when review is final] of trench units in Parcel G. EPA noted additional issues in the remaining 17%. The reviews found a widespread pattern of practices that appeared to show potential deliberate falsification, failure to perform the work required to ensure ROD requirements were met, or both. These observations in the record call into question . . .